

Rockwell International Corporation
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Arlington, Virginia 22202



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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

November 28, 1994

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Mr. William F. Caton
Acting Secretary
The Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Re: Rockwell Ex Parte Letter in PR Docket 93-61
Advanced Vehicle Monitoring

Dear Mr. Caton:

Pursuant to Section 1.1206, enclosed on behalf of Rockwell International Corporation are two copies of an ex parte letter of even date in the above referenced docket. The ex parte letter is addressed to the Chairmen and Commissioners with copies to Ralph A. Haller and F. Ronald Netro (PRB), Richard M. Smith (OET) and Ruth Milkman (Office of the Chairman).

Respectfully Submitted,

Linda C. Sadler
Manager, Governmental Affairs

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**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY**

November 28, 1994

The Honorable Reed Hundt, Chairman
The Honorable James Quello, Commissioner
The Honorable Andrew Barret, Commissioner
The Honorable Susan Ness, Commissioner
The Honorable Rachelle Chong, Commissioner

Ex Parte - Two Copies Filed
with Office of the Secretary

The Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Re: PR Docket 93-61
Advanced Vehicle Monitoring

Dear Mr. Chairman and Commissioners:

Rockwell International ("Rockwell") is a leader in commercial communications and electronics technologies, a provider of mobile communications and advanced vehicle monitoring (AVM) services and equipment, an interim AVM licensee and a manufacturer of Part 15 devices. As such, Rockwell is concerned with the present course of PR Docket 93-61 as reflected in the Commission's Notice of Proposed Rulemaking, FCC 93-141, and in the subsequent "unofficial FCC staff proposal". Rockwell believes it is against the public interest to allocate spectrum in the 902 - 928 MHz band to AVM services using wideband pulse ranging RF techniques that are prone to interference problems with other AVM interim services and incumbent Part 15 users.

More spectrally efficient vehicle monitoring alternatives are available today. Rockwell and other service providers are using Global Positioning System (GPS) in conjunction with packet radio techniques including cellular digital packet data (CDPD), Artis and

Mobitex over existing wireless services such as SMR and cellular - independent of the crowded 902 - 928 MHz band. Given the alternatives available, Rockwell urges the Commission not to place the healthy and growing incumbent Part 15 community in jeopardy and impede the development of more compatible narrowband AVM technologies in the 902 - 928 MHz band by allocating spectrum to pulse ranging AVM systems.

Rockwell's Interests

Rockwell is uniquely qualified to address this proceeding because of its diversified commercial interests and expertise. Rockwell's Allen-Bradley Automation subsidiary, which filed comments in opposition to Teletrac's Petition For Rulemaking¹, manufactures a line of RF tagging systems that operate in the 902 - 928 MHz band under both Part 15 and the Part 90 interim AVM rules. Major American automotive manufacturers use the systems to assist in production and assembly management and quality control. Additionally, Rockwell's Digital Communications Division is developing advanced RF technology for Part 15 applications in the 902 - 928 MHz band.

In addition to Rockwell's direct interest and experience in the 902 - 928 MHz band, Rockwell has extensive and respected expertise in vehicle tracking. Rockwell was the prime contractor to the US government for the GPS satellite system currently providing worldwide vehicle tracking capability. Rockwell offers three distinct classes of commercial GPS-based AVM services for passenger cars, local and regional fleets and interstate trucking fleets. Rockwell's GPS capabilities also include the production of passenger car guidance systems which are being adopted by major US rental car fleets, commercially available GPS engines and numerous military contracts utilizing GPS technology and equipment.

¹See Comments of Allen-Bradly Company, Inc., July 23, 1992 in RM-8013

Rockwell's Opposition to Permanent Allocation of AVM Services Using Wideband Pulse Ranging RF Techniques in the 902 - 928 MHz Band

Contradictory predictions about the consequences of allocating wideband pulse ranging systems in the 902 - 928 MHz band have filled the record in PR Docket 93-61. While the principal wideband pulse ranging AVM proponents maintain that interference problems with the Part 15 community will be manageable under the normal Part 15 guidelines, several in the Part 15 community claim interference to and from wideband AVM systems will force them out of the band. As a manufacturer of Part 15 devices and low power narrowband AVM systems licensed under the interim Part 90 rules, Rockwell agrees with the Consumer Electronics Section of the Telecommunications Industry Association (TIA) and Metricom, Inc.² that potential interference to and from wideband pulse ranging AVM systems is an unresolved and, in some cases, insurmountable problem in this proceeding. The record demonstrates that the Part 15 community was an early advocate of cross - industry discussions on interference and interference testing. Although the wideband pulse ranging proponents recently engaged in informal discussion on spectrum sharing with the Part 15 community, they continue to ask the Commission to immediately issue a Report and Order granting exclusive and hierarchical allocations that could be devastating to the Part 15 community.

The Commission's Rules and Regulations helped to foster a diverse range of Part 15 applications that operate in the 902 - 928 MHz band today. The public benefits provided by Part 15 devices are well documented in the record of this proceeding. Gas and utilities companies use a variety of Part 15 devices for remote monitoring, meter reading, and other applications. Unlicensed wide area networks authorized under Part 15 provide broad-band wireless connectivity. In addition, millions of Part

²See Notice of joint ex parte presentation by the Consumer Electronics Section of the TIA and Metricom filed on September 12, 1994.

15 devices operating in the 902 - 928 MHz, such as cordless phones, provide unique RF service directly to consumers. Rockwell believes that disrupting and/or displacing the healthy and growing multi-million dollar Part 15 industry and its diverse user groups in the 902 - 928 MHz band is against the public interest.

Rockwell also agrees that the diversity and sheer volume of Part 15 devices in the 902 - 928 MHz band will make enforcement of the proposed hierarchy both technically and politically difficult.³ The Commission's Part 15 regulatory scheme relies on achieving compliance before devices are manufactured. Technology-specific rules and the Equipment Authorization process have made the mass production, distribution and operation of unlicensed RF devices possible. Allocating a new service that is unable to tolerate the co-channel noise permitted under the existing Part 15 technical rules creates an enforcement situation that could require substantial technical, administrative and monetary resources to remedy.

The mobility and inconsistent patterns of use of the millions of incumbent Part 15 devices would make fair and accurate identification of interference sources to pulse ranging systems nearly impossible. The Commission must consider the potentially unwieldy administrative and operational logistics of fairly enforcing the proposed hierarchy. The Commission should also consider the consumer-related public policy issues that could emerge if existing consumer devices with FCC approval are judged to be a source of harmful interference to pulse ranging systems.

In addition to the interference problems with the Part 15 community, exclusive allocations protecting wideband pulse ranging AVM systems would limit the development of robust narrowband AVM systems capable of sharing with the incumbents. Rockwell believes that such narrowband systems should instead be

³See the jointly filed ex parte letter of CellNet Data Systems and KNOGO, August 19, 1994, and the ex parte presentation of Metricom, November 3, 1994.

rewarded for their spectral efficiency with allocations for licensed service in the 902 - 928 MHz band on a co-equal basis with the incumbent Part 15 users. Rockwell urges the Commission to establish permanent technical rules for narrowband AVM, including radiated power limits, to ensure harmony between narrowband systems and Part 15 users. Rockwell submits that it is counterproductive and against the public interest to sacrifice the benefits provided by Part 15 devices and narrowband AVM systems in order to clear spectrum for pulse ranging AVM systems when more spectrally efficient alternatives exist.

GPS-Based AVM Systems

The public benefits offered by wideband pulse ranging AVM systems are already available from GPS-based systems. The US government has spent billions of dollars building an entire infrastructure that accommodates vehicle tracking - the Global Positioning System. The FCC has dedicated its time and resources protecting that investment from harmful interference, most recently in GN Docket 92-166, the Big LEO proceeding. Any business or consumer can use the GPS infrastructure free of charge - GPS an excellent example of successful defense conversion, where defense dollars and technology directly benefit the public in applications unrelated to national security. US and foreign electronics companies continue to introduce new GPS applications and product lines by the month. GPS is being augmented with other technologies including gyros, deadreckoning and map matching to enhance its positioning ability. Rockwell, Qualcomm and other companies are currently providing GPS-based AVM services.

Rockwell currently offers multiple classes of GPS-based AVM services including an emergency response system for passenger cars and fleet management systems for local/regional fleets and interstate trucking fleets. Using GPS receivers enhanced with additional sensor technology and RF data links from existing radio services, Rockwell's

vehicle monitoring systems do not require special allocations in the 902 - 928 MHz band.

Rockwell believes enhanced GPS and digital packet data RF links are the future of vehicle tracking. GPS will offer precision accuracy, +/- 5 meters, and increased availability with the deployment of infrastructure enhancements such as the Federal Aviation Administration's Wide Area Augmentation System (WAAS). On the network side, wireless digital packet data services such as RAM Mobitex and Artis are already widely available and cellular carriers are currently deploying CDPD. As GPS continues to proliferate, the unit cost of GPS engines will continue to fall. Over the next few years, it is expected that the price of GPS engines will drop at a rate exceeding 25% per year.

Readily available and inexpensive GPS engines eliminate the need to allocate exclusive spectrum to pulse ranging systems for the purpose of tracking, especially in the crowded 902 - 928 MHz band. Further, because position and other vehicle status information can be transmitted over a wide range of available private and commercial mobile radio services, it is not necessary to cause interference problems in the 902 - 928 MHz band by licensing high power AVM links.

Conclusion

In the NPRM and the "unofficial FCC staff proposal" the Commission made a concerted effort to accommodate the many needs of wideband pulse ranging AVM systems, but the interference issues have not been resolved. Unlike their robust and relatively low power narrowband cousins, pulse ranging systems' requirement for six to ten MHz of clean spectrum makes them ill-suited candidates for permanent allocation in the highly diversified and already crowded 902 - 928 MHz band. Given the availability of enhanced GPS-based vehicle positioning and monitoring, it is Rockwell's view that the public interest will best be served if the Commission refrains from

allocating spectrum in the 902 - 928 MHz band to wideband pulse ranging AVM systems.

Please contact the undersigned if you have any questions regarding Rockwell's comments. Rockwell personnel are available to meet with the Commissioners and staff to discuss our views and the various efforts underway at Rockwell relevant to this proceeding.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "Linda C. Sadler".

Linda C. Sadler
Manager, Governmental Affairs

cc: Ralph A. Haller, PRB
 F. Ronald Netro, PRB
 Richard M. Smith, OET
 Ruth Milkman, Office of the Chairman